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WEST GERMAN SCIENTIST TESTS AIR AS LUBRICANT

The Max-Planck Institute for Friction Research at Goettingen has been operating a novel test model of a three-phase electric motor for over a year. The friction bearing uses air instead of oil as a lubricant, with the shaft floating on an air layer instead of on an oil film. Despite the high rotation speed of the motor, it runs with surprisingly little noise.

The designers, Professor Vogelpohl and his five associates, have demonstrated that the viscosity of air is 500 times less than that of the thinnest lubrication oil. Two shafts are used in the test: one rests in a standard roller bearing, while the other has a friction bearing with air lubrication. The two shafts are first rotated at 3,000 revolutions per minute, and then allowed to coast. The shaft with the standard roller bearing is easier to start, but coasts for only 2 minutes, while the shaft with the air-lubricated bearing revolves for 7 minutes.

The most recent experiments at the Goettingen institute are being carried out using an electric motor with a ring armature which has air-lubricated bearings. It is to reach 30,000 revolutions per minute.

Professor Vogelpohl claims that this new method of lubrication is of great economic importance, since it will save large amounts of money for lubricants, energy expended to overcome friction, and wear and tear due to friction.

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